

NWS Form E-5
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(PRES. BY NWS Instruction 10-924)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE

HYDROLOGIC SERVICE AREA (HSA)
San Juan, Puerto Rico

MONTHLY REPORT OF HYDROLOGIC CONDITIONS

REPORT FOR:
MONTH YEAR
July 2010

TO: Hydrologic Information Center, W/OS31
NOAA's National Weather Service
1325 East West Highway
Silver Spring, MD 20910-3283

SIGNATURE
Althea Austin-Smith,
Service Hydrologist
DATE
08/13/2010

When no flooding occurs, include miscellaneous river conditions below the small box, such as significant rises, record low stages, ice conditions, snow cover, droughts, and hydrologic products issued (NWS Instruction 10-924).

☐ An X inside this box indicates that no flooding occurred within this hydrologic service area.

Summary: The San Juan ASOS reported 8.52 inches of rain for the month of July; 4.36 inches greater than the normal of 4.16 inches. The ASOS rainfall report from Cyril E. King Airport in St. Thomas was 7.45 inches for the month of July; 5.03 inches greater than the normal of 2.42 inches.

"July 2010 began with showers and isolated thunderstorms across several sectors of Puerto Rico as the result of an upper level low inducing low level troughiness across the region. Widespread rainfall amounts around 2 inches accompanied this event. Days after, much drier weather returned to the region, with only passing trade wind showers observed across eastern sections of Puerto Rico and the U.S. Virgin Islands each morning, with scattered afternoon showers and thunderstorms observed across western Puerto Rico each afternoon. By mid July, several tropical waves had reached the local area. A broad area of disturbed weather associated with the strongest tropical wave brought a very moist and unstable air mass across the local islands around the 20th of the month, resulting in widespread showers and areas of flooding across portions of the forecast area. By the end of the month, the widespread heavy rains ended, and once again, shower and thunderstorm activity shifted to a more typical pattern, with areas of locally induced activity."

(Excerpts from SJU's climate reports ... for more local climate details ... see <http://www.srh.noaa.gov/sju/?n=jul2010cr>)

The tropical wave that moved across Puerto Rico and the U.S. Virgin Islands during the week of July 19th through July 23rd generated numerous showers and isolated thunderstorms, some with very heavy rain. The wave itself maintained a broad area of disturbed weather, aided in part by an upper level low pressure system just north northwest of the local area. As a result, the shower and thunderstorm formation across sections of Puerto Rico and the U.S. Virgin Islands persisted; resulting in several days of widespread rainfall.

"Drier air finally filtered across the local islands from the east on Saturday July 24, but not before those several days of heavy rainfall contributed to the 8.22 inches of rainfall that accumulated in San Juan by the end of the 23rd of the month, adding to an already [record wet year](#) observed across much of the northeastern Caribbean. Across the U.S. Virgin Islands, precipitation was also well above normal, with the wettest July on record recorded at the Cyril E. King Airport on Saint Thomas."

The highest 24-hour precipitation total across Puerto Rico for the month of July was 9.03", which fell in Ceiba over the 24 hour period ending at 8 am July 20th. The highest weekly rainfall across Puerto Rico occurred in San Lorenzo for the second month in a row, where 13.18" of rain accumulated the week ending July 23rd. *"Across the U.S. Virgin Islands, the highest 24-hour precipitation total fell at East End on Saint John, where a record 4.55" fell over the 24 hour period ending at 8 am on July 20th. For the week ending July 23rd, 10.58" of rain fell at Coral Bay on Saint John, representing the highest weekly rainfall across the U.S. Virgin Islands for the month of July."*

(Excerpts from SJU's climate reports ... for more local climate details ... see

<http://www.srh.noaa.gov/sju/?n=jul2010cr>)

The river responses were as expected with the heavy rainfall; with the highest response and greater reports of flooding in Eastern Puerto Rico. The smaller basins in the East and Northeast that experienced flooding were the Rio Fajardo, Rio Blanco, Rio Naguabo and Rio Gurabo. The larger basins that experienced flooding from this event were the Rio Grande de Loiza and Rio de la Plata. Except for Ceiba, San Lorenzo and the extreme Northeast, the majority of rainfall was spread over numerous days, and although the flooding caused some impressive damage, it was not the typical river responses that one expects with flood damage in Puerto Rico. The damage was from high fluctuating flows over a few days as opposed to one extreme flash flood event. In the U.S. Virgin Islands; flooding resulted from swollen guts in addition to urban flooding in Havensight and Brookman Road in St. Thomas and at the Marketplace shopping center in Cruz Bay, St. John. In St. Croix, where a trained observer reported 2.14 inches of rain in one hour, flooding was reported in Christiansted and Teague's Bay.

Flood warnings were issued for river Rio Grande de Loiza which included the smaller contributing basins of Caguas, Gurabo, Juncos, San Lorenzo and Trujillo Alto. In addition, several flash flood warnings were also issued to cover small rivers, streams and creeks in Luquillo, Naguabo, Ceiba, Fajardo and Rio Grande. Flash flood warnings were also issued for the U.S. Virgin Islands.

(See the LSR and E3 flood stage reports for details)

**Largest one day total of 4 inches or greater
Reminder...these totals are from 8am to 8am**

(USGS data) Location -----	STATE -----	TOTAL 07/20 -----
NSSR/CEIBA 3SE	PR	9.03
R GR D LOIZA/SAN LOR	PR	7.31
FAJARDO 5SW	PR	5.32
R ESPIRITU SANTO-R G	PR	5.32
R ICACOS NR NAGUABO	PR	4.46
R CAYAGUAS@CERRO GOR	PR	4.38
ISABEL SEGUNDA 2SE	PR	4.07

LSRs for the month of July

The most significant events are posted below.

..TIME...	...EVENT...	...CITY LOCATION...	...LAT.LON...
..DATE...MAG....	..COUNTY LOCATION..ST..	...SOURCE....
..REMARKS..			
0719 PM 07/19/2010	FLOOD	FAJARDO FAJARDO	18.33N 65.66W PR EMERGENCY MNGR
	A HOUSE WAS REPORTED FLOODED IN URB BEBE CALZADA,BEHIND JF MONTALVO SUPERMARKET.		
0719 PM 07/19/2010	FLOOD	FAJARDO FAJARDO	18.33N 65.66W PR EMERGENCY MNGR
	HOUSES AND ROAD WERE REPORTED FLOODED AT URB BARALT.		
1020 AM 07/19/2010	FLOOD	RIO GRANDE RIO GRANDE	18.38N 65.84W PR EMERGENCY MNGR
	A HOUSE WAS REPORTED FLOODED AT VILLAS DE RIO GRANDE.		
1020 AM 07/19/2010	FLOOD	RIO GRANDE RIO GRANDE	18.38N 65.84W PR EMERGENCY MNGR
	A STREET WAS FLOODED AT URB LOS MAESTROS.		
1020 AM 07/19/2010	FLOOD	SAN LORENZO SAN LORENZO	18.19N 65.97W PR EMERGENCY MNGR

A HOUSE WAS REPORTED FLOODED AT BO QUEMADOS, ARIL SECTOR. ROAD 181 KM 1.0			
1020 AM 07/19/2010	FLOOD	SAN LORENZO SAN LORENZO	18.19N 65.97W PR EMERGENCY MNGR
ROAD WAS REPORTED FLOODED AT BO QUEMADOS, ARIL SECTOR.			
1039 PM 07/20/2010	FLASH FLOOD	FAJARDO FAJARDO	18.33N 65.66W PR EMERGENCY MNGR
EMERGENCY MANAGEMENT OFFICIAL REPORTED THAT THE RIO FAJARDO WAS OUT OF ITS BANKS AT THE INTERSECTION OF ROAD 3 AND HIGHWAY 53 BETWEEN FAJARDO AND CEIBA. THE ROAD 3 WAS CLOSED DUE TO FLOODING.			
0217 PM 07/20/2010	FLOOD	E CHRISTIANSTED SAINT CROIX	17.75N 64.71W VI CO-OP OBSERVER
PARKING LOT OF DUGGINS RESTAURANT FLOODED FROM FLOODING GUTS IN TEAGUE'S BAY, ST. CROIX. 2.14 INCHES OF RAINFALL IN ONE HOUR.			

The approximate amounts of Hydrologic Products issued during the month of July are as follows:

Table 1 - Hydrologic Products Issued

Non-Routine Hydrologic Products Issued:	Approximate number of Products for the month
Hydrologic Outlooks (SJUESFSJU)	0
Flood Watches (SJUFFASJU)	15
Flood Warnings (SJUFLWSJU)	9
Flash Flood Warnings (SJUFFWSJU)	16
Flash Flood Statements (SJUFFSSJU)	7
Urban/Small Stream Flood Advisories (SJUFLSSJU)	128

For monthly "radar totals" use the archive of the Advanced Hydrologic Prediction Service (AHPS) - click on Puerto Rico and request the duration you would like to view...daily or monthly remembering that the 24 hour totals are from 12z – 12z (8am to 8am in PR) - [AHPS archive of radar totals/ images](#) . Here are the [July 2010 totals](#).